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Zero waste

The UK is in the middle of a waste crisis. New European legislation has spelt the beginning of the end for the polluting and unpopular practice of land-filling our rubbish. This has created a stampede by local authorities for incinerators, which are also hugely unpopular with the public and produce a range of toxic and cancer-causing chemicals.

However, a totally new way of looking at waste is emerging that removes the need to burn or bury our rubbish – Zero Waste

What is Zero Waste?

At first sight Zero Waste, the idea that we will produce no rubbish, only raw materials for other industrial processes, appears to be little more than a utopian dream. However, not only is Zero Waste achievable it is already catching on in both multinational companies and cities around the world.

Zero waste can smash barriers to solving the waste crisis. For example, we need to break the link between economic growth and creating rubbish. In developed countries a 40% increase in GDP since 1980 has meant 40% more municipal waste. Current waste policy cannot break this link but Zero Waste can – through producer responsibility, eco-design and disposal taxes, as well as waste reduction, reuse and recycling.

The term “Zero Waste” has its origins in the highly successful Japanese industrial concept of total quality management. Its goals such as “zero defects” have generated astonishing results in improving production technologies, for example Toshiba have used total quality management to cut defects to one per million.

Transferred to the arena of municipal waste, Zero Waste forces attention onto the whole lifecycle of products. It involves not just the recycling of materials but the replacement of non-renewable polluting materials with renewable alternatives, Industry abounds with examples, like Volkswagen, which has started making car doors from plant-based plastics.

Zero waste requires us to realise the value of our waste by developing new uses for it. For example in Asia, rice husks, which are incombustible, are being used as a substitute for polystyrene to package electronic goods and then after that use, as a fire resistant building material. In the USA rubber crumb from old tyres is being used to make basketball courts and has been so effective that the extra spring has reduced the rate of knee injuries among players.

Does it work?

Japanese firms have been leading the way in the adoption of zero waste policies.

Toyota is aiming for zero waste by 2003. And other major companies including Honda, Du Pont, Hewlett Packard and NEC have begun to adopt zero waste targets.

Zero Waste is more common in industry but over the last five years it has been transferred to the municipal field. In 1996, Canberra in Australia became the first city to adopt a zero waste target (for 2010). It has since inspired a zero waste movement in New Zealand. In California, some authorities have achieved their initial 50% rubbish reduction targets and are now moving to adopt zero waste goals. Here in the UK, Bath and North East Somerset Council has become the first British local authority to set a zero waste target.

A Zero Waste Policy for Britain

A Zero Waste policy requires transitional techniques and technology that move us towards zero and do not block the way forward. Incineration, an expensive and polluting technology, needs a guaranteed large supply of waste to pay back large capital investments and so can not work as part of the transition. It is the polar opposite of zero waste and if we go down the incineration route, we will commit ourselves to another 25-30 years of this dangerous and polluting technology.

The techniques necessary to drive us towards zero are best characterised as 'smart' waste management. Smart systems are flexible according to the area, locally based and use the resources in household waste as well as generating jobs and wealth for the local economy. They involve reorganising household waste management in four key ways.

1. Organic waste

There should be separate doorstep collection of organic rubbish – kitchen and garden waste – from all UK households by 2006. The authorities should take this to a network of locally based sealed compost units.

Organic waste accounts for between 30-45% of what goes into our dustbins. Composting this would not only reduce waste but removal of the decomposable portion of our rubbish can save money by making it possible to switch to fortnightly collections for the remainder, saving up to £100,000 per refusing round (as shown by programmes in Daventry, Wye and Rochford.). Just removing organic waste from our dustbins could ensure that all local authorities meet their recycling targets by 2005/6.

Experience has shown that it is more effective to treat food and green garden waste separately. Food waste can be collected in small containers and vehicles and does not need compacting. Garden waste can be compacted when collected or composted at home if possible.

EXAMPLE: The Italians have adopted food waste collection systems using small capacity vehicles serving around 2000 households. These are operated by one person and cheaper than an ordinary rubbish truck. People collect food scraps in a six-litre bin in their kitchen which is then transferred to a 30-litre bin outside which is emptied into the collection truck

2. Dry Recyclables

E.g. paper, glass, cardboard, plastics, metals, textiles

Doorstep collections of dry recyclables should be extended to all UK households.

There should be doorstep collections of dry recyclables which households can put out in one single bin. These represent 30-40% of the average bin and doorstep collection achieves a much higher recycling rate than for example bottle and can banks

EXAMPLE: In the London boroughs of Haringey and Islington, small electrically powered PCVs (pedestrian controlled vehicles) have proved a cheap, quiet, congestion-free, timesaving and energy efficient means of collecting dry recyclables.

3. Bulky and household hazardous Waste

E.g. rubble, wood, electrical goods, paint.

Civic amenity sites that are orientated towards disposal should be replaced with a wide network of reuse and recycling centres. These should be combined with regular doorstep collections of bulky items and garden waste. Bulky items account for 23% of household waste

4. Management of residual (any remaining waste) through Mechanical and Biological Treatment (MBT)

Until we achieve Zero Waste we will need to landfill a small portion of our waste especially in the transition years. This should only happen after the maximum amount of organics and dry recyclables have been removed. This residual waste needs to be 'cleaned', that is made as biologically safe as possible to avoid the chemical reactions, methane emissions and leaching of poisons into soil and groundwater, that makes the landfill of mixed waste such a problem. This can be done by Mechanical-Biological Treatment (MBT).

MBT uses sieving, magnets, air streams and electrical currents to remove further metals, plastics and other materials. The largely biodegradable residue is then put in a hi-tech sealed compost unit to break down organic material, which can include paper, textiles and the organic content of nappies. The remaining

substance is greatly reduced in weight and volume and can be safely landfilled or used as a daily landfill cover.

EXAMPLE: MBT combined with a big drive to recycle and compost has enabled Edmonton in Canada to reduce its waste by 70%. MBT systems are now catching across Europe, in Germany, Austria, Italy and Flanders.

Producer Responsibility

A product that is cheaper than a competitor's because it can be thrown away without regard for the environment is in fact receiving a subsidy from public money through the costs needed to get rid of it. Individual producer responsibility internalises these costs into the costs of the product. Put simply, this means that if a product and its packaging cannot be reused, recycled or composted then the producer must be responsible for collecting and dealing with products at the end of their life. This will force producers to design products that eliminate waste.

Producer responsibility legislation is already emerging from Europe, for example there is a forthcoming directive on batteries. The End of Life Vehicles Directive and the Waste Electrical and Electronic Equipment Directives set high targets for reuse and recycling and exclude the use of some very hazardous materials. Some of the more progressive electronics manufacturers are arguing for individual as opposed to collective producer responsibility. This provides market driven incentives for elimination of waste through design.

EXAMPLE: Ford Motors have been in discussion with zero waste experts and 500 suppliers as to how their cars can be designed so they can be disassembled and the parts used elsewhere at the end their working lives.

'A New Service Commodity'

A new way of looking at waste also involves a change in the way we use and buy products. Part of the road to zero waste involves the emergence of a 'new service commodity' in which manufacturers instead of selling a product sell a service package. The consumer leases say a TV or washing machine service, and the manufacturer is responsible for upgrades, maintenance and recycling the product at the end of the lease.

EXAMPLE: Interface Carpets, one of the world's biggest suppliers of carpets operates leasing schemes. Carpets are maintained by Interface, which has an incentive to keep them in good condition for as long as possible and will turn carpets periodically to spread wear and

Conclusion

Zero Waste is an objective that waste policy in the UK desperately needs. For too long we have been stuck with a system geared towards the cheapest possible disposal option in the short-term – irrespective of the environmental and human health consequences. We are now at a crossroads. We can stick with this dirty, outmoded and illogical framework or move to a different mindset. We can build scores more incinerators, which are unhealthy and unpopular or we can start to practice “Smart” waste management and begin to reap the environmental, social and economic benefits of converting household waste into useful raw materials. Most fundamentally of all, we can continue to squander resources and disperse them in such a manner that they become dangerous pollutants, or we can recognise that waste does not just arise, but that it is designed. As such it can be designed away.